In the Claims:

1-17 (Cancelled)

18. (Currently Amended) ~~An illumination system according to claim 14 wherein the array is a two dimensional array.~~

An illumination system for illuminating an SPR sensor surface having formed therein a conducting layer, the illumination system comprising:

a two dimensional array of light sources;

a collimator that directs light from each light source in a collimated beam of substantially parallel light rays so that the light is incident on the sensor surface; and

a light source controller controllable to turn off and turn on a light source in the array independent of the other light sources in the array.

19. (Previously Presented) An illumination system according to claim 18 wherein the array comprises rows and columns of light sources.

20. (Previously Presented) An illumination system according to claim 19 wherein each column is substantially coplanar with a normal to the interface.

21. (Previously Presented) An illumination system according to claim 19 wherein each row is substantially perpendicular to the normal.

22. (Previously Presented) An illumination system according to claim 19 wherein light sources in a same column provide light at substantially same wavelengths.

23. (Previously Presented) An illumination system according to claim 18 wherein all the light sources in the array provide light at substantially same wavelengths.

24. (Previously Presented) An illumination system according to claim 19 wherein light sources in a same row provide light at different wavelengths.

25. (Currently Amended) An illumination system according to claim ~~14~~ 18 and comprising an optical element having two parallel surfaces through which light from each light source passes before it is incident on the sensor surface and wherein the optical element is rotatable about an axis perpendicular to the normal so as to change an angle at which light from a given light source is incident on the sensor surface.

26-44 (Cancelled)

45. (Currently Amended) An illumination system according to claim ~~15~~ 18 wherein light from each light source in the array illuminates the sensor surface at a different incident angle.

46. (Currently Amended) An illumination system according to claim ~~15~~ 18 wherein light from each light source in the array illuminates the sensor surface at a same incident angle.

47. (Currently Amended) An illumination system according to claim ~~14~~ 18 wherein light sources in at least a subset of light sources in the array provide light at substantially same wavelengths.

48. (Currently Amended) ~~An illumination system according to claim 47 wherein light from light sources in the subset is incident on the sensor surface at substantially different incident angles.~~

An illumination system for illuminating an SPR sensor surface having formed therein a conducting layer, the illumination system comprising:

an array of light sources;

a collimator that directs light from each light source in a collimated beam of substantially parallel light rays so that the light is incident on the sensor surface; and

a light source controller controllable to turn off and turn on a light source in the array independent of the other light sources in the array;

wherein light sources in at least a subset of light sources in the array provide light at substantially same wavelengths, and light from light sources in the subset is incident on the sensor surface at substantially different incident angles.

49. (Currently Amended) An illumination system according to claim ~~14~~ 18 wherein for at least a subset of the light sources, light from each of the light sources in the subset illuminates the sensor surface at a same incident angle.

50. (Previously Presented) An illumination system according to claim 49 wherein light sources in the subset provide light at different wavelengths.